CLAIMS

(Amended) [1] An actuator for a pickup, comprising:

a fixed portion;

a movable portion designed to be movable in each of a focusing direction extending along an optical axis of an objective lens and a tracking direction substantially perpendicular to the focusing direction, due to a driving force transmitted from a drive portion, for holding the objective lens; and

a plurality of linear elastic members of five or more each having ends connected to the movable portion and the fixed portion, respectively, wherein

the plurality of the linear elastic members is equal to one another in length dimension between the fixed portion and the movable portion,

the ends of the plurality of the linear elastic members are located on a virtual circle formed on a plane by being projected onto a plane including both the focusing direction and the tracking direction, ~~and~~

the virtual circle has a center defined as a rolling center, with which a center of translational forces of the linear elastic members coincides, and

~~coincides with~~ at least one of a center of gravity of the movable portion, and a center of a driving force of the movable portion, ~~and a center of translational forces of the linear elastic members~~ coincides with the rolling center.

(Deleted) ~~[2] The actuator for the pickup according to Claim 1, wherein the linear elastic members include six linear elastic members.~~

(Deleted) ~~[3] An actuator for a pickup, comprising:~~

~~a fixed portion;~~

~~a movable portion designed to be movable in each of a focusing direction extending along an optical axis of an objective lens and in a tracking direction substantially perpendicular to the focusing direction, due to a driving force transmitted from a drive portion, for holding the objective lens; and~~

~~four linear elastic members each having ends connected to the movable portion and the fixed portion, respectively, wherein~~

~~the ends of the four linear elastic members are located on a virtual circle formed on a plane by being projected onto a plane including both the focusing direction and the tracking direction,~~

~~the ends are linked with one another by line segments constituting substantially a trapezoidal shape, and~~

~~the virtual circle has a center defined as a rolling center, which coincides with at least one of a center of gravity of the movable portion, a center of a driving force of the movable portion, and a center of translational forces of the linear elastic members.~~

(Deleted) ~~[4] The actuator for the pickup according to Claim 3, wherein~~

~~the four linear elastic members are composed of two linear elastic members linked with each other by a line segment constituting an upper base of the trapezoidal shape, and two linear elastic members linked with each other by a line segment constituting a lower base of the trapezoidal shape, and~~

~~the former two linear elastic members are different in cross-sectional area from the latter two linear elastic members.~~

(Deleted) ~~[5] The actuator for the pickup according to Claim 4, wherein the two linear elastic members linked with each other by the line segment constituting the upper base of the trapezoidal shape are different in cross-sectional width dimension from the two linear elastic members linked with each other by the line segment constituting the lower base of the trapezoidal shape.~~

(Deleted) ~~[6] The actuator for the pickup according to Claim 3, wherein~~

~~the four linear elastic members are composed of the two linear elastic members linked with each other by the line segment constituting an upper base of the trapezoidal shape and the two linear elastic members linked with each other by the line segment constituting a lower base of the trapezoidal shape, and~~

~~the former two linear elastic members are different in modulus of elasticity from the latter two linear elastic members.~~

(Deleted) ~~[7] A pickup device, comprising:~~

~~the actuator for the pickup according to any one of Claims 1 to 6; and~~

~~an actuator drive portion for driving the actuator for the pickup.~~

(Deleted) ~~[8] A recording medium drive device, comprising:~~

~~the pickup device according to Claim 7.~~

(Deleted) ~~[9] A method of producing an actuator for a pickup including: a fixed portion; a movable portion designed to be movable in each of a focusing direction extending along an optical axis of an objective lens and a tracking direction substantially perpendicular to the focusing direction, to hold the objective lens; and a plurality of linear elastic members of five or more each having ends connected to the movable portion and the fixed portion, respectively,~~

~~the method, comprising:~~

~~locating the ends of the plurality of the linear elastic members on a virtual circle formed on a plane by being projected onto a plane including both the focusing direction and the tracking direction, respectively; and~~

~~making at least one of a center of gravity of the movable portion, a center of a driving force of the movable portion, and a center of translational forces of the linear elastic members coincide with a center of the virtual circle defined as a rolling center.~~

(Deleted) ~~[10] A method of producing an actuator for a pickup including: a fixed portion; a movable portion designed to be movable in each of a focusing direction extending along an optical axis of an objective lens and a tracking direction substantially perpendicular to the focusing direction, to hold the objective lens; and four linear elastic members each having ends connected to the movable portion and the fixed portion, respectively,~~

~~the method, comprising:~~

~~locating the ends of the four linear elastic members on a virtual circle formed on a plane by being projected onto a plane including both the focusing direction and the tracking direction;~~

~~ensuring that line segments linking the ends with one another assume substantially a trapezoidal shape; and~~

~~making at least one of a center of gravity of the movable portion, a center of a~~

~~driving force of the movable portion, and a center of translational forces of the linear elastic members coincide with a center of the virtual circle defined as a rolling center.~~

(Deleted) ~~[11] The method of producing the actuator for the pickup according to Claim 9 or 10, further comprising:~~

~~installing the linear elastic members in a mold for molding the fixed portion and the movable portion; and~~

~~insert molding the actuator for the pickup through injection of a molten resin from an injection port of the mold.~~

(Added) [12] An actuator for a pickup, comprising:

a fixed portion;

a movable portion designed to be movable in each of a focusing direction extending along an optical axis of an objective lens and a tracking direction substantially perpendicular to the focusing direction, due to a driving force transmitted from a drive portion, for holding the objective lens; and

a plurality of linear elastic members of five or more each having ends connected to the movable portion and the fixed portion, respectively, wherein:

the plurality of the linear elastic members is equal to one another in length dimension between the fixed portion and the movable portion,

the ends of the plurality of the linear elastic members are located on a virtual circle formed on a plane by being projected onto a plane including both the focusing direction and the tracking direction, and

the virtual circle has a center defined as a rolling center, which coincides with a center of translational forces of the linear elastic members, a center of gravity of the movable portion, and a center of a driving force of the movable portion.

(Added) [13] The actuator for the pickup according to Claim 1 or 12, wherein

the linear elastic members include six linear elastic members,

the linear elastic members are disposed laterally symmetrically across the rolling center in the tracking direction, and

the linear elastic members which are adjacent to one another in a direction

parallel to the tracking direction satisfy a relationship of KC×C+KA×A = KB×B when the linear elastic members close to the rolling center are disposed on one side of the focusing direction, and a relationship of KA×A = KC×C+KB×B when the linear elastic members close to the rolling center are disposed on another side of the focusing direction, given that line segments drawn from the rolling center onto line segments linking the ends of the linear elastic members with each other have length dimensions A, C, and B and moduli of elasticity KA, KC, and KB, respectively, sequentially in the focusing direction.

(Added) [14] An actuator for a pickup, comprising:

a fixed portion;

a movable portion designed to be movable in each of a focusing direction extending along an optical axis of an objective lens and in a tracking direction substantially perpendicular to the focusing direction, due to a driving force transmitted from a drive portion, for holding the objective lens; and

four linear elastic members each having ends connected to the movable portion and the fixed portion, respectively, wherein

the ends of the four linear elastic members are located on a virtual circle formed on a plane by being projected onto a plane including both the focusing direction and the tracking direction,

the ends are linked with one another by line segments constituting substantially a trapezoidal shape, and

the virtual circle has a center defined as a rolling center, which coincides with at least one of a center of gravity of the movable portion, a center of a driving force of the movable portion, and a center of translational forces of the linear elastic members.

(Added) [15] The actuator for the pickup according to Claim 14, wherein

the four linear elastic members are composed of two linear elastic members linked with each other by a line segment constituting an upper base of the trapezoidal shape, and two linear elastic members linked with each other by a line segment constituting a lower base of the trapezoidal shape, and

the former two linear elastic members are different in cross-sectional area from

the latter two linear elastic members.

(Added) [16] The actuator for the pickup according to Claim 15, wherein the two linear elastic members linked with each other by the line segment constituting the upper base of the trapezoidal shape are different in cross-sectional width dimension from the two linear elastic members linked with each other by the line segment constituting the lower base of the trapezoidal shape.

(Added) [17] The actuator for the pickup according to Claim 14, wherein

the four linear elastic members are composed of the two linear elastic members linked with each other by the line segment constituting an upper base of the trapezoidal shape and the two linear elastic members linked with each other by the line segment constituting a lower base of the trapezoidal shape, and

the former two linear elastic members are different in modulus of elasticity from the latter two linear elastic members.

(Added) [18] A pickup device, comprising:

the actuator for the pickup according to any one of Claims 1 and 12 to 17; and

an actuator drive portion for driving the actuator for the pickup.

(Added) [19] A recording medium drive device, comprising:

the pickup device according to Claim 18.

(Added) [20] A method of producing an actuator for a pickup including: a fixed portion; a movable portion designed to be movable in each of a focusing direction extending along an optical axis of an objective lens and a tracking direction substantially perpendicular to the focusing direction, to hold the objective lens; and a plurality of linear elastic members of five or more each having ends connected to the movable portion and the fixed portion, respectively,

the method, comprising:

equalizing the plurality of the linear elastic members to one another in length dimension between the fixed portion and the movable portion,

locating the ends of the plurality of the linear elastic members on a virtual circle formed on a plane by being projected onto a plane including both the focusing direction

and the tracking direction, respectively; and

making a center of translational forces of the linear elastic members coincide with a center of the virtual circle which is defined as a rolling center, and

making at least one of a center of gravity of the movable portion and a center of a driving force of the movable portion coincide with the rolling center.

(Added) [21] A method of producing an actuator for a pickup including: a fixed portion; a movable portion designed to be movable in each of a focusing direction extending along an optical axis of an objective lens and a tracking direction substantially perpendicular to the focusing direction, to hold the objective lens; and four linear elastic members each having ends connected to the movable portion and the fixed portion, respectively,

the method, comprising:

locating the ends of the four linear elastic members on a virtual circle formed on a plane by being projected onto a plane including both the focusing direction and the tracking direction;

ensuring that line segments linking the ends with one another assume substantially a trapezoidal shape; and

making at least one of a center of gravity of the movable portion, a center of a driving force of the movable portion, and a center of translational forces of the linear elastic members coincide with a center of the virtual circle defined as a rolling center.

(Added) [22] The method of producing the actuator for the pickup according to Claim 20 or 21, further comprising:

installing the linear elastic members in a mold for molding the fixed portion and the movable portion; and

insert-molding the actuator for the pickup through injection of a molten resin from an injection port of the mold.